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Discovery of *Abelia spathulata* (Caprifoliaceae) in eastern China

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Abstract *Abelia spathulata*, a species native to Japan, is discovered in Zhejiang Province, China. It is most closely related to *A. chinensis* genetically but easily distinguishable by its 2-flowered cyme (vs. flowers many in a terminal panicle in *A. chinensis*) at the end of branchlets, white or pink (vs. white) corolla, which is 2–3 (vs. 0.5–1) cm long, campanulate and bilabiate (vs. infundibuliform, nearly regular), and non-exserted (vs. exserted) stamens.

Key words Caprifoliaceae, *Abelia*, *Abelia spathulata*, China.

Abelia R. Brown (Caprifoliaceae) consists of about 22 to 25 species with a disjunct distribution in East Asia (Japan, Korea, and China), central Asia, and Mexico (Barnes, 2001; Villarreal & La Rosa, 2000). The genus was established by R. Brown in 1818 with *A. chinensis* R. Brown as the type species. *Abelia* is often considered to be closely related to *Linnaea* L. (Rehder, 1911; Hu, 1988), and this relationship was supported by recent phylogenetic evidence (Backlund & Pyck, 1998). *Abelia* was sometimes merged with *Linnaea* and recognized as a section within the latter (e.g., in Fritsch, 1891). Taxa of *Abelia* were sometimes divided into two genera: *Abelia* s.s. and *Zabelia* (Rehd.) Makino (e.g., in Ohba, 1993; Tang & Li, 1994). Rehder (1911) recognized 27 species in the genus with most species from China. Since then, several species have been added to various floras such as two in Japan (see Hara, 1983; Ohwi & Kitagawa, 1992; Ohba, 1993), four in Korea (Lee, 1979), and recently three in Mexico (Villarreal, 1997; Villarreal & La Rosa, 2000). Hu (1988) recognized nine species in China. The Chinese species have shown a wide range of variation in leaf shape, size and pubescence, and number of flowers per inflorescence. The variational pattern of these characters has not been well understood so far, and novelties have been noted for the genus in China. For example, *Abelia serrata* Sieb. & Zucc., a species formerly known to be endemic to Japan, was recently found in eastern China (Zhou et al., 2004). During our revisionary and biogeographic studies of the genus, we discovered another species, *A. spathulata* initially known only from Japan, at the same locality as *A. serrata* in Zhejiang Province, eastern China. Below we provide the description of *A. spathulata*.

Abelia spathulata Sieb. & Zucc., Fl. Jap. 1: 77, t. 34, f2, 1839.

Figs. 1, 2

Deciduous shrubs up to 3 m high. Branchlet tenuous, glabrous, castaneous. Leaves membranous, ovate, apex acuminate to caudate, base rounded, margin sparsely serrate or

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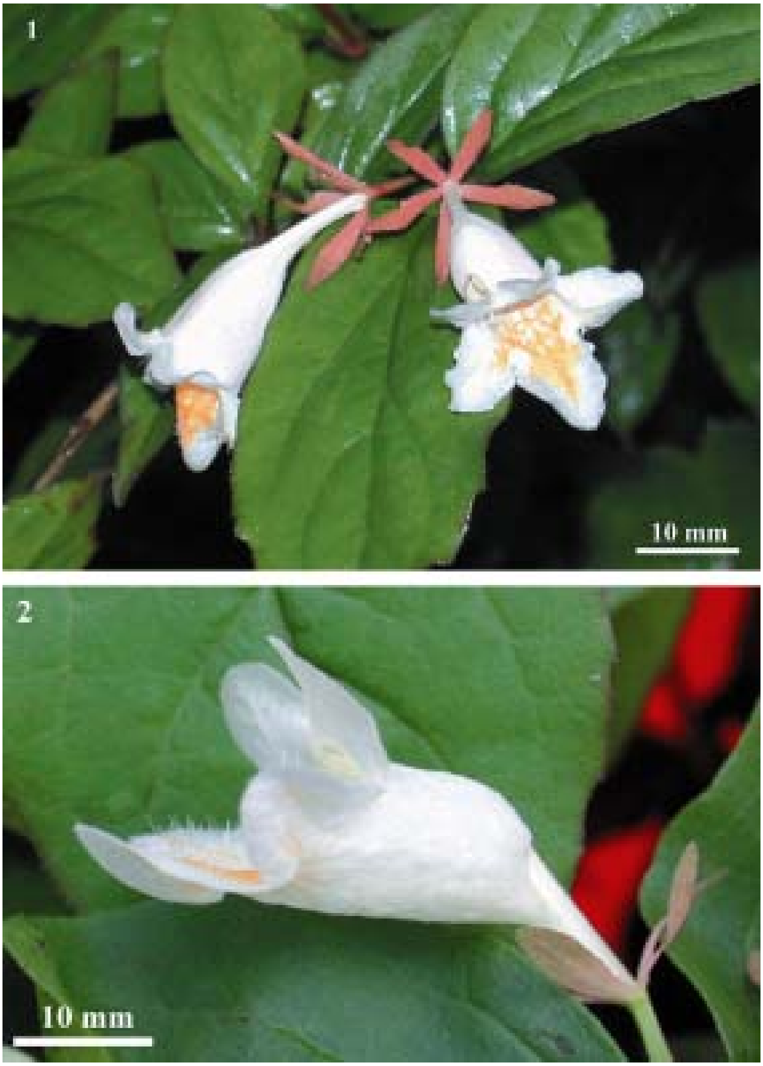

Figs. 1–2. **1.** *Abelia spathulata*, showing the two-flowered cyme and calyx morphology. **2.** *Abelia spathulata*, showing corolla morphology.

entire; petioles ca. 4 mm long, glabrous; lamina 6.3±0.6×3.2±0.3 cm, sparsely pilose on both sides when young; lower surface pale green, hairy on veins. Lateral veins 2–4 pairs, sunken on upper surface and prominent on lower surface. Flowers sessile, 2 in a cyme at the terminal of branchlet; peduncles 4–5(9) mm long; bracteoles 3, lanceolate, 2–3×1 mm; calyx reddish, (4)5 lobed, lobes oblong-lanceolate or linear, nearly of equal length to ovary; corolla campanulate, slightly bilabiate and curved, pink or white with a faint flush of red and villose hairs tinted with saffron veins inside the tube and on the lobes, ca. 25×8–9 mm, contracted sharply from the middle to the base; the lobes widely ovate; stamens 4, didynamous, non-exserted, inserted at the middle of corolla tube; ovary linear, 1 cm long, glabrous to sparsely hairy, styles slender, stigmas enlarged. Achenes columnar with elongated calyx.

Specimens examined:

China. Zhejiang (浙江): Wenzhou (温州), Mt. Sihaishan (四海山), 28°30.69′N, 120°43.75′E, alt. 900

m, 2002-05-19 (fl.), S. L. Zhou & S. T. Lu (周世良, 陆水土) 2002520 (PE), 2000-06-10 (fr.), S. L. Zhou (周世良) 20006103 (PE); alt. 700 m, 1989-09-22 (fr.), S. L. Zhou (周世良) 0192 (ZJFC); alt. 670 m, 1989-10-18 (fr.), C. S. Ding & G. Y. Li (丁陈森, 李根有) 1418 (ZJFC); alt. 900 m, 1989-10-15 (fr.), C. S. Ding & G. Y. Li (丁陈森, 李根有) 1242 (ZJFC).

Distribution and ecology: In China, *Abelia spathulata* is only known from Mt. Sihaishan, Wenzhou, Zhejiang Province. It is common under the forest canopy of *Pinus massoniana* Lamb., together with *Acer davidii* Franch., *Eurya hebeclados* Y. Ling, *E. rubiginosa* Chang var. *attenuata* Chang, *Euscaphis japonica* (Thunb.) Dipp., *Lindera reflexa* Hemsl., and *Rhododendron latoucheae* Franch. Fl. May; Fr. Jun.–Oct.

Abelia spathulata is similar to *A. tetrasepala* (Koidz.) Hara & Kurosawa in cymes and corolla morphology. However, the corolla of *A. tetrasepala* is yellowish, and one sepal is very small, making it look like 4-sepaled. *Abelia tetrasepala* is probably a hybrid between *A. spathulata* and *A. serrata*. The closest relative of *A. spathulata* is *A. chinensis* (Zhou & Qian, 2003; Zhou et al., 2004). They share similar morphology of calyxes and nearly identical ITS sequences (data unpublished). But *A. spathulata* is readily distinguishable from *A. chinensis* by its 2-flowered cyme (vs. flowers many in terminal panicle) at the end of branchlets, white to pink (vs. white) corolla, which is 2–3 (vs. 0.5–1) cm long, campanulate (vs. infundibuliform), and bilabiate (vs. nearly regular), and non-exserted (vs. exserted) stamens.

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中国忍冬科分布新记录——温州六道木

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摘要 温州六道木*Abelia spathulata* Sieb. & Zucc.原来被认为特产于日本，最近发现也分布在我国浙江省永嘉县四海山。温州六道木与糯米条*A. chinensis* R. Brown的亲缘关系最近，但温州六道木聚伞花序仅2花，生于小枝顶端；花冠白色或粉红色，长2–3 cm，钟状，裂片二唇形；雄蕊不伸出花冠筒外。糯米条聚伞花序多花，集生于小枝顶部叶腋成圆锥花序状；花冠白色，长0.5–1 cm，漏斗状，裂片近辐射对称；雄蕊显著伸出花冠筒外。

关键词 忍冬科；六道木属；温州六道木；中国